Claims

1. A steel intaglio printing plate (8) comprising a printing plate surface (9) having at least one first area with steel intaglio structures (10) and at least one second area with embossed structures (11), wherein the embossed structures (11) are of an order of magnitude of less than 100 microns and wherein the parts of the embossed structures (11) closest to the printing plate surface (9) are located 20 microns to 100 microns below the printing plate surface (9).

2. A mold (*Z*) for producing steel intaglio printing plates (8) according to claim 1 comprising at least one first segment (*M*) having negative steel intaglio structures (10') and at least one second segment (*DD*) different from the first segment (*M*) and having negative embossed structures (11'), wherein the mold (*Z*) has a molding plane (9') and wherein the parts of the negative embossed structures (11') closest to the molding plane (9') are located 20 microns to 100 microns above the molding plane (9').

3. A mold (*Z*) for producing steel intaglio printing plates (8) according to claim 1 comprising at least one segment (*M*) having negative steel intaglio structures (10') and negative embossed structures (11'), wherein the mold (*Z*) has a molding plane (9') and wherein the parts of the negative embossed structures (11') closest to the molding plane (9') are located 20 microns to 100 microns above the molding plane (9').

4. An original printing plate for producing a mold according to claim 3 having steel intaglio structures (10) and at least one gap (13) into which an embossing die (*D*) with embossed structures (11) is so inserted that the parts of the embossed structures (11) closest to the surface of the original printing plate (*O*) are located 20 microns to 100 microns below said surface.

5. An object according to any of claims 2 to 4, wherein the embossed structures are of an order of magnitude of $\leq$ 100 microns.

6. An object according to any of claims 1 to 5, wherein the embossed structures (11) are of an order of magnitude in the range of 5 to 100 microns.

7. An object according to any of claims 1 to 5, wherein the embossed structures (11) are so formed that a diffractive relief structure can be embossed therewith.

8. An object according to claim 7, wherein the embossed structures (11) are of an order of magnitude of less than 1 micron.

9. An object according to any of claims 1 to 8, wherein the parts of the embossed structures (11) closest to the printing plate surface (9) or molding plane (9') are located at least 40 microns away from the printing plate surface (9) or molding plane (9').

10. An object according to any of claims 1 to 9, wherein the parts of the embossed structures (11) closest to the printing plate surface (9) or molding plane (9') are located at most 60 microns away from the printing plate surface (9) or molding plane (9').

11. An object according to any of claims 1 to 10, wherein the area of the embossed structures (11) has an area size of less than 400 square millimeters, preferably less than 100 square millimeters.

12. An object according to any of claims 1 to 11, wherein a plurality of areas with embossed structures (11) constitute an embossed structure grid.

13. An object according to any of claims 1 to 12, wherein the embossed structures (11) are separated from the steel intaglio structures (10) or from another area with embossed structures (11) by a separation bar (12) extending as far as the printing plate surface (9) or molding plane (9') and having a width of at least 0.5 millimeters.

14. A method for producing an object according to any of claims 1, 2 or 5 to 13 comprising the following steps:

- producing a steel intaglio structure (10) in an original printing plate (*O*) and producing at least one matrix (*M*) from the original printing plate (*O*),
- producing an embossing die (*D*) with embossed structures (11) and producing at least one embossing die duplicate (*DD*),
- producing a mold (*Z*) with a molding plane (9') by disposing side by side and connecting one or more matrices (M, M_1, M_2, ...) and one or more embossing die duplicates (DD, DD_1, DD_2, ...) so that the parts of the embossed structures closest to the molding plane are located 20 microns to 100 microns above the molding plane (9').

15. A method for producing an object according to any of claims 1 or 3 to 13 comprising the following steps:
    - producing steel intaglio structures (10) in an original printing plate (*O*),
    - producing at least one gap in the surface of the original printing plate (*O*) having the steel intaglio structures (10),
    - producing an embossing die (*D*) with embossed structures (11),
    - inserting the embossing die (*D*) into the gap (13) such that the parts of the embossed structures (11) closest to the surface of the original printing plate (*O*) are located 20 microns to 100 microns below said surface.

16. A method according to claim 15, wherein a plurality of matrices (M_1, M_2, ...) are embossed from the original printing plate (*O*) with the embossing die (*D*) inserted into the gap (13), said matrices being disposed side by side and connected to constitute a mold (*Z*).

17. A method according to claim 14 or 16, wherein a steel intaglio printing plate (8) is molded from the mold (*Z*).

18. A method according to claim 17, wherein the molding of the steel intaglio printing plate (8) from the mold (*Z*) is effected by galvanoplasty.

19. A method for producing a steel intaglio printing plate (8) according to any of claims 1 or 5 to 13 comprising the following steps:
    - producing steel intaglio structures (10) in a steel intaglio printing plate (8),

- producing embossed structures (11) in the steel intaglio printing plate (8) by engraving such that the parts of the embossed structures (11) closest to the surface of the steel intaglio printing plate (8) are located 20 to 100 microns below said surface.

20. A method according to any of claims 14 to 19, wherein the embossed structures (11) are of an order of magnitude of $\leq$ 100 microns.

21. A method for producing a security document by steel intaglio printing using a steel intaglio printing plate according to any of claims 1 and 5 to 13 comprising the steps of:
    - filling the steel intaglio structures (10) of the steel intaglio printing plate (8) with ink without filling the embossed structures (11) with ink,
    - printing a security document by means of the steel intaglio printing plate (8) partially filled with ink and embossing the embossed structures in a printing operation while applying a pressure that suffices for transferring the ink from the steel intaglio structures (10) to the security document, on the one hand, and embossing the security document in the area of the embossed structures (11), on the other hand.

22. A method according to claim 21, wherein the embossing of the security document in the area of the embossed structures (11) is a blind embossing.

23. A method according to claim 21, wherein the security document has an embossable coating (5, 6) and wherein the embossing of the security document is effected in the area of said embossable coating such that diffractive relief structures are embossed into the embossable coating.

24. A method according to claim 23, wherein the embossed coating is covered with a transparent protective layer (7).

25. A security document having a steel intaglio printed image and a microstructure embossing produced with an intaglio printing plate according to any of claims 1 or 5 to 13.